Alberta Ambient Air Quality Guidelines Work Plan

Prepared by:

Air and Water Branch
Science and Standards Division
Alberta Environment

April 2001

Alberta
ENVIRONMENT

Pub. No: T/638
ISBN: 0-7785-2045-5 (On-Line Edition)
Web Site: http://www.gov.ab.ca/env/

Any comments, questions, or suggestions regarding the content of this document may be directed to:

Science and Standards Division
Alberta Environment
4th Floor, Oxbridge Place
9820 – 106th Street
Edmonton, Alberta T5K 2J6
Phone: (780) 427-5883
Fax: (780) 422-4192

Additional copies of this document may be obtained by contacting:

Information Centre
Alberta Environment
Main Floor, Great West Life Building
9920 – 108th Street
Edmonton, Alberta T5K 2M4
Phone: (780) 944-0313
Fax: (780) 427-4407
Email: env.infocent@gov.ab.ca

TABLE OF CONTENTS

ABSTRACT 1
INTRODUCTION 1
STAKEHOLDER PRIORITIES 1
ALBERTA ENVIRONMENT NEEDS 2
PROCEDURES FOR GUIDELINE DEVELOPMENT 3
SUBSTANCE CLASSIFICATION 5
TIMELINES 7
CONCLUSION 8

APPENDIX A AMBIENT AIR QUALITY GUIDELINES PRIORITY SETTING WORKSHOP A1
APPENDIX B TABLES OF CONTENTS FOR ASSESSMENT DOCUMENTS A9
APPENDIX C OTHER AMBIENT AIR QUALITY GUIDELINES PROCESSES A11

LIST OF TABLES

Table 1 Subset Of Block 1 Substances - Stakeholder Priorities for Alberta Ambient Air Quality Guidelines Development 2
Table 2 Stakeholder Priorities for Alberta Ambient Air Quality Guidelines Development 2
Table 3 Alberta Environment Ambient Air Quality Guidelines Needs 3
Table 4 Procedures for Alberta Ambient Air Quality Guideline Development 3
Table 5 Alberta Ambient Air Quality Guidelines: Development Procedure, by Substance 7

LIST OF FIGURES

Figure 1 Procedure for Guideline Creation 4
Figure 2 Procedure for Guideline Review 4
Figure 3 Procedure for Guideline Adoption 6
Figure 4 Procedure for Guideline Update 6
Figure 5 Timelines for Guideline Creation 7
Figure 6 Timelines for Guideline Review 8
Figure 7 Timelines for Guideline Adoption 8

AMBIENT AIR QUALITY GUIDELINES WORK PLAN

ABSTRACT

Three new guidelines for three classes of substances – Heavy Metals, Reduced Sulphur Compounds, and Volatile Organic Compounds – will be developed over the next three years. Four guidelines will be reviewed using a multi-stakeholder process. In addition, Alberta Environment will adopt six new guidelines.

INTRODUCTION

This document outlines the development process and plan of action of Alberta Environment's (AENV's) Science and Technology Branch for the creation and revision of the Alberta Ambient Air Quality Guidelines (AAQGs). Guideline development outlined in this plan will occur over the three-year period ending March 31, 2004.

The Ambient Air Quality Guidelines Priority Setting Workshop was held in October 2000 to receive stakeholder input into the priority of substances nominated to the guideline development process. The recommendation to undertake this stakeholder prioritization process was made to Alberta Environment by the Multi-Stakeholder Group for Particulate Matter and Ozone (MSG). Subgroups of stakeholders, with balanced membership from non-governmental organizations/the public, industry, and government agencies, selected the substances that they considered priorities for guideline creation and revision. (See Appendix A - Ambient Air Quality Guidelines Priority Setting Workshop). The input of these subgroups is detailed in the *Priority Setting Workshop – Alberta Ambient Air Quality Guidelines* proceedings.

STAKEHOLDER PRIORITIES

The Ambient Air Quality Guidelines Priority Setting Workshop proceedings Executive Summary identified a list of substances that were of primary interest to stakeholders - the Block 1 list. The workshop participants agreed that guideline development was not necessarily the most appropriate approach to each substance they placed in Block 1. The proceedings also presented a subset of the Block 1 substances, which was put forward as the stakeholder priority list for guideline development. This subset is presented in Table 1: Subset of Block 1 substances – stakeholder priorities for Alberta Ambient Air Quality Guidelines Development.

Table 1 Subset of Block 1 Substances - Stakeholder Priorities for Alberta Ambient Air Quality Guidelines Development

Stakeholder Priority Substance	
Ammonia	NO_x group
Benzene	Ozone
Carbon disulphide	Sulphur dioxide
Hydrogen sulphide	Total reduced sulphur (TRS)

A summary of participants' recommendations contained in the proceedings is presented here with additional analysis. To illustrate the number of groups supporting guideline development for each substance, a table was produced (Appendix A, Table A). Stakeholder priorities that were recognized in Table A can be found in Table 2: Stakeholder priorities for Alberta Ambient Air Quality Guideline Development.

Table 2 Stakeholder priorities for Alberta Ambient Air Quality Guidelines Development

Stakeholder Priority Substance	
Ammonia	Nitrogen dioxide
Benzene	Ozone
Carbon disulphide	Particulate matter (PM)
Chlorine	Toluene
Chlorine dioxide	Total Reduced Sulphur (TRS)
Chromium	Sulphur dioxide
Heavy Metals	Xylenes
Hydrogen sulphide	Volatile Organic Compounds (VOCs)

Stakeholders requested that further information be made available for several substances for which guideline development was not a priority. These substances were dioxins, formaldehyde, Polycyclic Aromatic Hydrocarbons, Ethylene oxide, Vinyl chloride, Mercury, and Pesticides. Over the three-year guideline review period, these substances will be designated as priority items for the Air Research Users Group research and information gathering initiatives.

ALBERTA ENVIRONMENT NEEDS

Several substances were identified as priority items internally by Alberta Environment. Guidelines for these substances were requested by staff in response to a variety of program needs. Alberta Environment will work on these substances in addition to the substances prioritised by stakeholders at the Ambient Air Quality Guidelines Priority Setting Workshop. These substances are found in Table 3: Alberta Environment Ambient Air Quality Guidelines Needs.

Table 3 Alberta Environment Ambient Air Quality Guidelines Needs

Alberta Environment Needs	
Acrylic acid	2-Ethyl hexanol
Acrylonitrile	Pentachlorophenol
Cumene acetone	Propylene oxide

PROCEDURES FOR GUIDELINE DEVELOPMENT

Four procedures for guideline development have been identified: *reviewing, updating, adopting, and creating*. The route that will be followed for guideline development depends on two factors: whether a guideline exists in Alberta, and whether it is a stakeholder priority or a department need. The matrix found in Table 4 identifies the process to be followed for each set of criteria.

Table 4 Procedures for Alberta Ambient Air Quality Guideline Development

	No Guideline	**Existing Guideline**
Stakeholder Priorities	Create	Review
AENV Needs	Adopt	Update

A guideline *creation* procedure is followed where no Alberta guideline exists and the substance is a stakeholder priority. The development procedure for guidelines undergoing creation is outlined in Figure 1. Guideline creation begins with a scoping phase. During the scoping phase approaches to guideline development are researched, and recommendations on possible approaches to guideline development are made. When the scoping phase is completed, the information gathering stage can begin. During the information gathering stage information relevant to the guideline creation process are compiled and reviewed. The assessment phase is conducted by stakeholders to synthesize and evaluate information gathered. Reports and recommendations are then made to Alberta Environment by the working group involved in the guideline creation procedure. A guideline is then proposed. A public review is conducted; results are taken under consideration, and a new guideline is announced.

Guideline *review* takes place where an Alberta guideline is currently in place and the guideline is a stakeholder priority. The development procedure for guidelines undergoing review is outlined in Figure 2. The review procedure is the equivalent of the guideline creation procedure, with two exceptions: the scoping phase is eliminated, and the final output is a revised guideline instead of a new guideline.

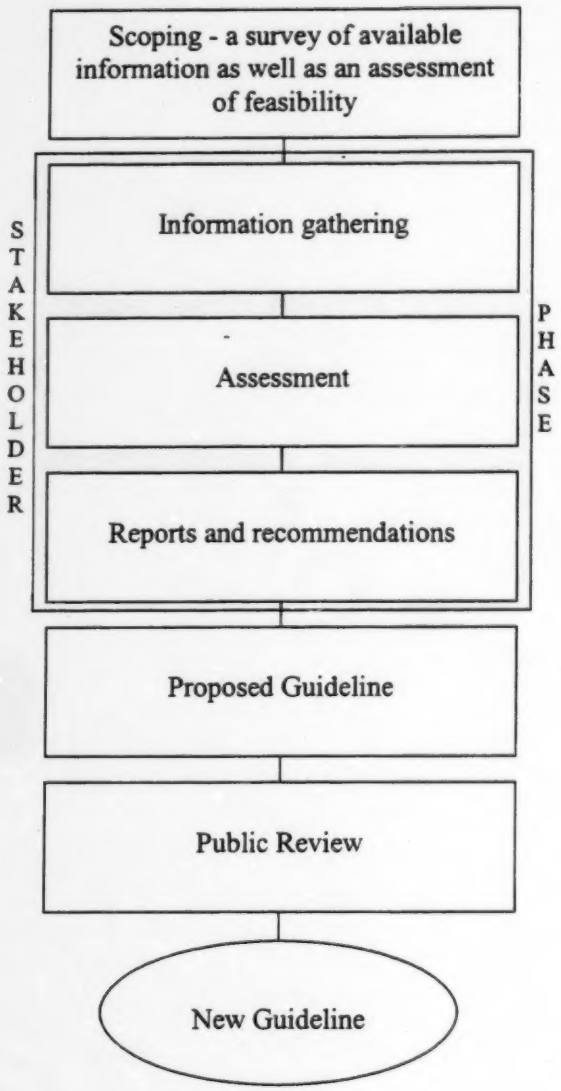


Figure 1 Procedure for guideline creation

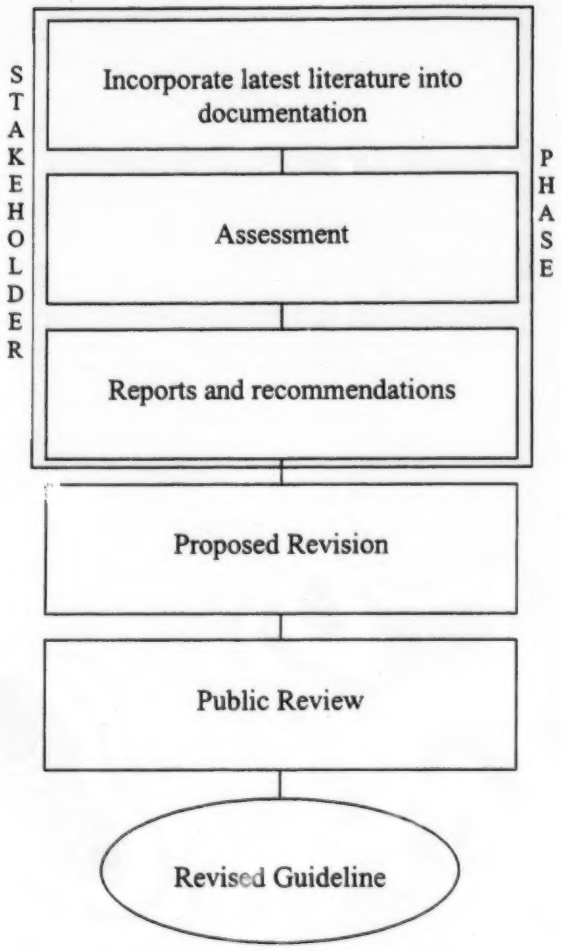


Figure 2 Procedure for guideline review

Guidelines are to be adopted where no Alberta guideline exists and Alberta Environment needs the guideline. The development procedure for guidelines being adopted is outlined in Figure 3. A survey of the guidelines in other jurisdictions is the first phase in guideline adoption. Guidelines surveyed are examined and evaluated. Reports are generated to provide the basis and background for the guideline. A guideline is proposed and released for public review. Finally, a new guideline is adopted.

Guideline updates take place where an Alberta guideline is currently in place and Alberta Environment needs the guideline to be revisited. The development process for guidelines undergoing review is outlined in Figure 4. A guideline update begins by incorporating the latest literature into current guideline documentation. Reports are generated to provide the basis and background for the guideline. A guideline is proposed and released for public review. Then the updated guideline is established. Stakeholders may request participation in the guideline update procedure, although there is no formal stakeholder consultation phase.

The Table of Contents for assessment reports can be found in Appendix B. The development of a guideline through the creating, reviewing, adopting, or updating procedures will be followed by a minimum 60-day public comment period.

SUBSTANCE CLASSIFICATION

The following groups of substances were identified as being areas of high stakeholder concern: heavy metals, Volatile Organic Compounds, and Reduced Sulphur Compounds. Reduced Sulphur Compounds includes all compounds contained in Total Reduced Sulphur (hydrogen sulphide, dimethyl sulphide, dimethyl disulphide, and methyl mercaptan), in addition to carbon disulphide and carbonyl sulphide. These three substance groups were identified as priorities for guideline development because they responded to a large number of stakeholder-identified priorities. Creating guidelines for these groupings instead of for individual substances is an effective use of limited resources, and results in the creation of guidelines that address a greater number of substances overall.

Substances and groups of substances were classed *review, adopt, update or create*. The classification of each substance or group of substances can be found in Table 5.

During the Ambient Air Quality Guidelines Priority Setting Workshop, Randy Angle of Alberta Environment indicated to participants that Alberta Environment would place priority on guideline creation over guideline review. As such, substances for which no guidelines exist in Alberta are the priority for guideline development. Guidelines that were identified by stakeholders as priority for review have been ranked using factors such as research requirements, potential timeframes, and ties to other processes. Because of resource limitations, work will not begin on the substances in the grey box in Table 5: Chlorine, Chlorine dioxide and Nitrogen dioxide, at this time. All substances in the grey box are currently supported by Alberta Ambient Air Quality Guidelines.

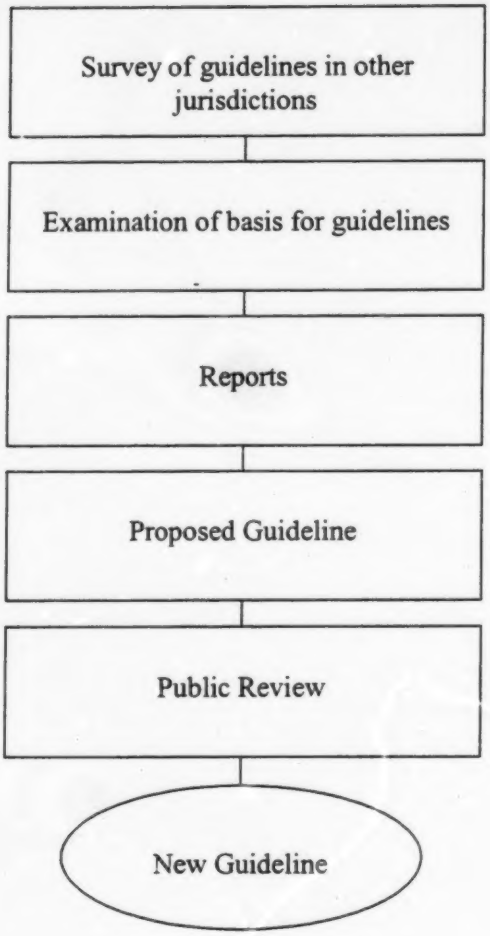


Figure 3 Procedure for guideline adoption

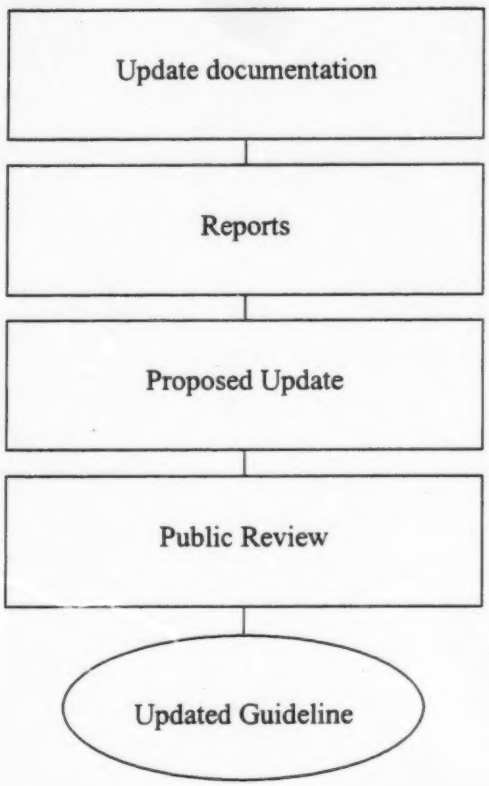


Figure 4 Procedure for guideline update

Table 5 Alberta Ambient Air Quality Guidelines: Development Procedure, by Substance

Create	Review	Adopt
– Heavy Metals – Reduced Sulphur Compounds (RSC) *(including Hydrogen sulphide, Carbon disulphide)* – Volatile Organic Compounds (VOCs) *(including Benzene, Toluene, and Xylenes)*	– Ammonia – Ozone – Particulate Matter – Sulphur Dioxide No action at this time: – Chlorine – Chlorine dioxide – Nitrogen dioxide	– Acrylic acid – Acrylonitrile – Cumene acetone – 2-Ethyl hexanol – Pentachlorophenol – Propylene oxide

TIMELINES

Timelines for guideline development are illustrated in Figure 5, Figure 6, and Figure 7. The Clean Air Strategic Alliance, Particulate Matter and Ozone Project Team is developing an implementation plan for the particulate matter and ozone Canada-Wide Standards, and in their deliberations, they may give recommendations on Alberta's PM and ozone guideline development. These recommendations will be taken under consideration.

Figure 5 Timelines for Guideline Creation

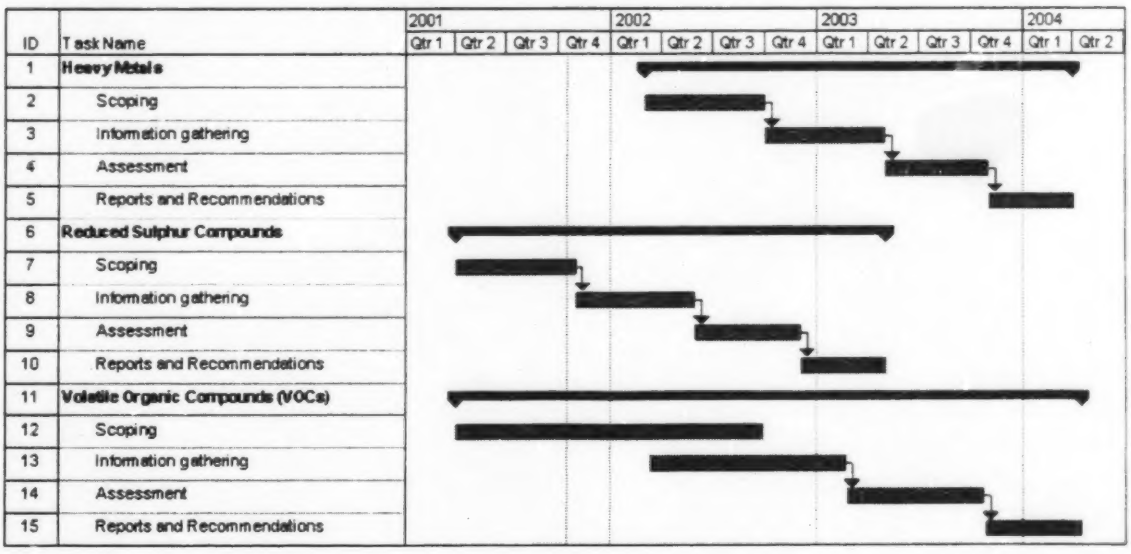


Figure 6 Timelines for Guideline Review

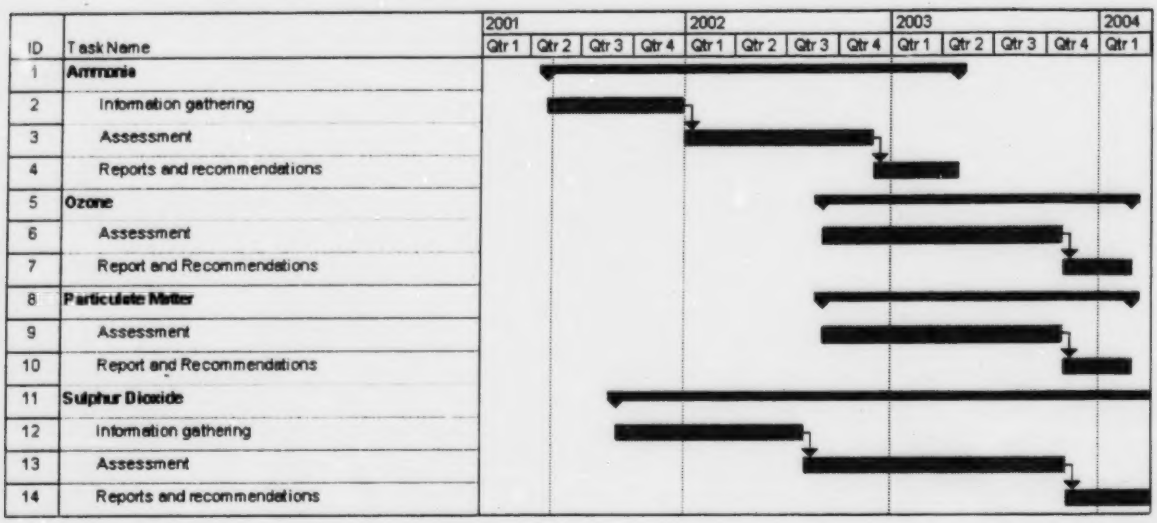
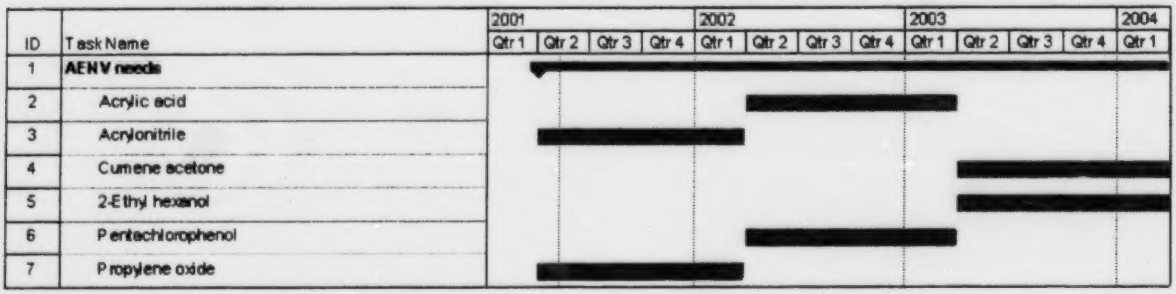


Figure 7 Timelines for Guideline Adoption



CONCLUSION

New guidelines will be developed over the next three years to address the following groups of substances: Heavy Metals; Reduced Sulphur Compounds (RSC) (hydrogen sulphide, demthyl sulphide, dimethyl disulfide, methyl mercaptan, carbon disulphide, and carbonyl sulphide), and Volatile Organic Compounds (VOC) (including benzene, toluene, and xylenes).

Four guidelines – ammonia, ozone, particulate matter, and sulphur dioxide will be reviewed using a multi-stakeholder process. Alberta Environment will also adopt six new guidelines: acrylic acid; acrylonitrile; cumene acetone; 2-ethyl hexanol; pentachlorophenol, and propylene oxide.

Appendix A Ambient Air Quality Guidelines Priority Setting Workshop

BACKGROUND

The Multi-Stakeholder Group for Particulate Matter (PM) and Ozone (MSG), was formed during the creation of the PM and Ozone Canada-wide Standards. The group was tasked with providing advice to Alberta Environment on the Standards. In addition to it's work on particulate matter and ozone, the group made a series of recommendations to Alberta Environment on the ambient air quality guideline development process. The Multi-Stakeholder Group recommended the multi-stakeholder process illustrated in **Figure A**, outlining a method Alberta Environment could use to gather stakeholder input on Ambient Air Quality Guidelines/Objectives.

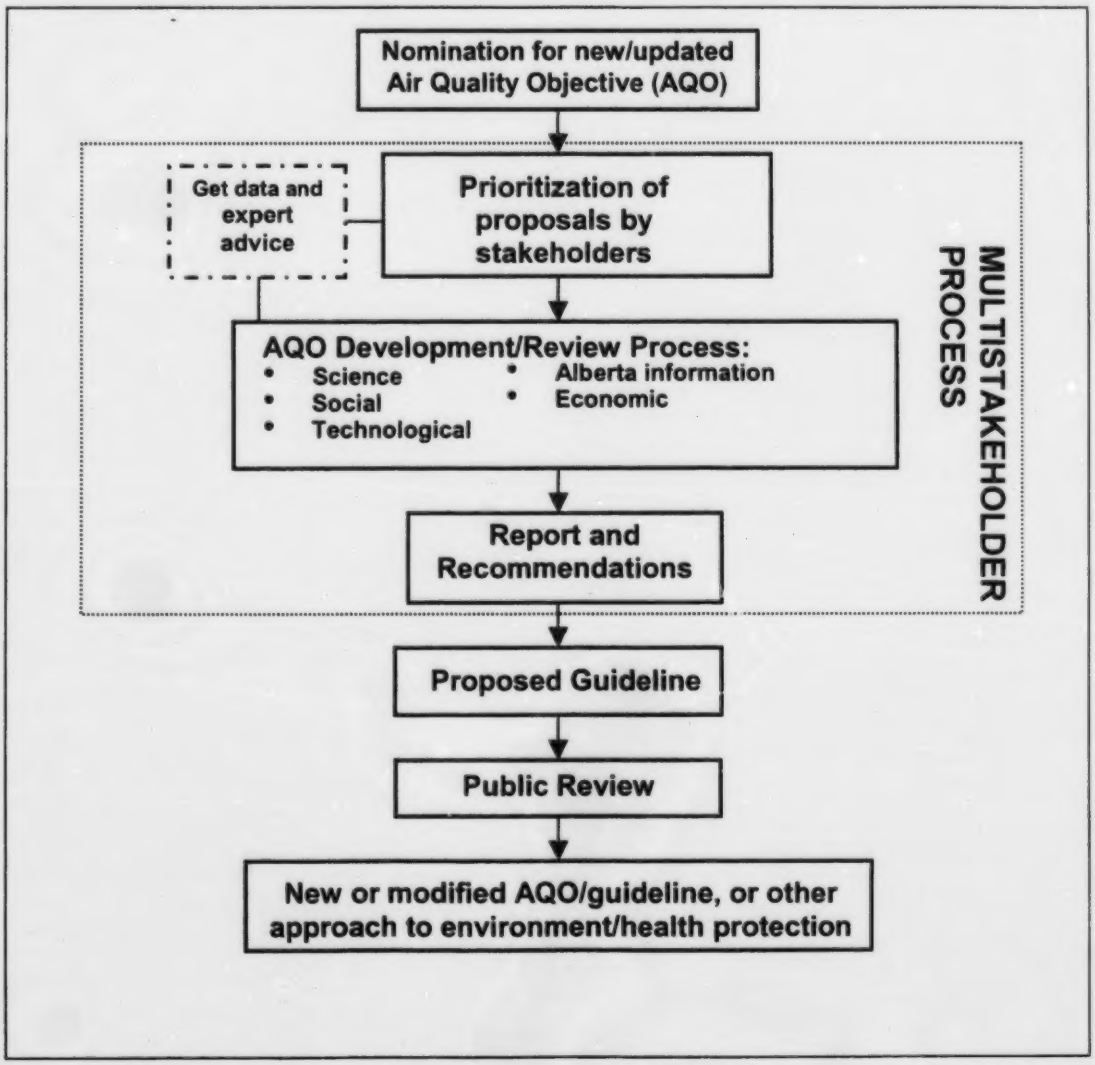


Figure A The Multi-Stakeholder Group for Particulate Matter and Ozone's recommendations to Alberta Environment: how to structure the Ambient Air Quality Guidelines consultation process.

PROCESS

Based on recommendations from the MSG, an Ambient Air Quality Guidelines Priority Setting process was initiated to seek the input of stakeholders in the creation of new Ambient Air Quality Guidelines. The process was coordinated by the Clean Air Strategic Alliance and guided by a multi-stakeholder Steering Committee.

Steering Committee

The Steering Committee (SC) oversaw the 2000 Priority Setting Workshop and provided advice to Alberta Environment on the process for identifying priorities for the development of Alberta ambient air quality guidelines. The SC consisted of two non-governmental organization representatives, two government representatives, and two industry representatives.

Members of the Steering Committee were:

Myles Kitagawa	Toxics Watch Society of Alberta
Alex Mackenzie	Alberta Health & Wellness
James Tweedie	Bert Riggall Environmental Foundation
Geoff Granville/Dana Atwell	Canadian Association of Petroleum Producers/Shell Canada
Ingrid Leipa	TransAlta Utilities
Dennis Stokes	Alberta Environment

The Steering Committee was tasked with making recommendations to Alberta Environment on:

- names of persons for the Science Advisory Committee;
- the Terms of Reference for the Science Advisory Committee;
- a representative from the Steering Committee to liaise with the Science Advisory Committee;
- a design for the 2000 Workshop;
- a comprehensive list of participants to be invited to the Workshop, and
- appropriate information to be sent to Workshop attendees.

They were also asked to evaluate the Workshop and the acceptability of the draft flowchart created by the Multi-Stakeholder Group for Particulate Matter and Ozone. The Multi-Stakeholder Group's structure for the guideline development consultation process was accepted by the Steering Committee.

Public Consultation

Requests for substance nominations were advertised in major newspapers across Alberta and sent to Clean Air Strategic Alliance stakeholders. All substance nominations that were made by the public and stakeholders were added to a list and submitted to a Science Advisory Committee (SAC) for review.

Expert Review – The Science Advisory Committee

The Science Advisory Committee (SAC), which consisted of experts in the fields of neurology, environmental toxicology, health risk assessment, plant ecology, animal health, veterinary medicine, and analytical chemistry, provided scientific support to stakeholders on priority substances for the development of Alberta Ambient Air Quality Guidelines.

Members of the SAC were:

Kathryn Enns	Consultant
Sheldon Roth, PhD	University of Calgary
Michael Prior, PhD	Consultant
Steve Hrudey, PhD	University of Alberta
Chris Le, PhD	University of Alberta
Tee Guidotti, PhD	George Washington University
Morgan Scott, PhD	Alberta Agriculture

The Science Advisory Committee was tasked with:

- reviewing information on candidate substances provided to the Science Advisory Committee;
- prioritizing substances based on adverse impacts (e.g. considering implications on human health, animal health, environmental effects, and any related cumulative effects);
- liaising with the representative of the Steering Committee as required;
- preparing a report for the stakeholder workshop to be provided to the Steering Committee;
- attending the Priority Setting Workshop to act as a resource to stakeholders.

The Science Advisory Committee was asked by the Steering Committee to select two blocks of 10-15 substances each from the list of nominations. The top "block" was to represent the substances that the Science Advisory Committee felt should have priority for the creation of Ambient Air Quality Guidelines, and the second "block" their secondary priorities.

Science Advisory Committee Recommendations

The Science Advisory Committee compiled their recommendations into a 20-page report, the *Scientific Advisory Committee Report to the Multi-stakeholder Steering Committee*. This report was distributed to workshop participants as a component of their workshop package. The top block recommended by the Science Advisory Committee for consideration for the creation of Ambient Air Quality Guidelines in Alberta was:

Ammonia
Benzene
BTEX
Carbon dioxide
Carbon disulphide
Carbon monoxide
Chlorine
Chlorine dioxide
Dioxins
Ethyl benzene
Hydrogen sulphide
Nickel (and compounds)
Nitric acid
Nitrogen dioxide
Nitrogen oxide
Ozone (ground level)
Particulate matter (PM 10 and PM 2.5)
Styrene
Sulphur dioxide
Toluene
Total reduced sulphur (TRS)
Xylenes

Workshop Process

During the workshop, stakeholders had the opportunity to review the blocks selected by the Science Advisory Committee. The Science Advisory Committee was available at the workshop to answer questions regarding their substance selections. Following a Science Advisory Committee question-and-answer period, subgroups were asked to give their opinions on which of the Science Advisory Committee's substance recommendations should remain in Block 1, which should be moved out of Block 1, and which should be moved into Block 1. Stakeholder recommendations were put forward to Alberta Environment in the *Priority Setting Workshop – Alberta Ambient Air Quality Guidelines* proceedings.

The recommendations made by workshop participants for new Ambient Air Quality Guidelines, and put forth in the *Priority Setting Workshop – Alberta Ambient Air Quality Guidelines* proceedings, were not identical for all subgroups. The following table was created outlining the direction received from the subgroups. There is an entry for each substance for which a recommendation was provided. Where there was a difference in the direction received from a subgroup in it's first and second break-out sessions, the recommendation put forward in the second break-out session was taken as the group's final recommendation.

Table A Recommendations of Workshop Subgroups for Substance Priority Ranking

Substance	Participant's direction	Original location	Priority for # Groups
Aerosolic pathogens	– Group 3 requested addition to Block 1. – Groups 1 and 2 did not make this request.	Not on original list	1
Ammonia	– All groups confirmed as a priority.	Block 1	3
Benzene	– All groups confirmed as a priority. – Groups 2 and 3 recognized alternate management strategies for benzene.	Block 1	3
1,3-butadiene	– Group 2 requested addition to Block 1. – Groups 1 and 2 did not make this request.	Block 2	1

Substance	Participant's direction	Original location	Priority for # Groups
BTEX	– Groups 2 and 3 requested removal from Block 1.	Block 1	1
Carbon dioxide	– Group 3 requested removal from Block 1. – Groups 1 and 2 requested or recognized alternate management plans.	Block 1	0
Carbon disulphide	– All groups confirmed as a priority.	Block 1	3
Carbon monoxide	– Group 1 confirmed as a priority. – Group 2 recognized the PM CWS as an alternate management strategy and requested removal from Block 1. – Group 3 requested removal from Block 1.	Block 1	1
Chlorine	– Group 1 and Group 3 confirmed as a priority. – Group 2 requested an alternate management strategy	Block 1	2
Chlorine dioxide	– Group 1 and Group 3 confirmed as a priority. – Group 2 requested an alternate management strategy.	Block 1	2
Chromium	– Group 3 requested addition to Block 1.	Block 2	2
Dioxins	– Group 3 confirmed as a priority. – Group 2 indicated that more information was required about oil and gas industrial sectors, and recognized the Dioxins and Furans CWS as an alternate management strategy. – Group 1 did not record a decision, but recognized the CWS as an alternate management strategy.	Block 1	1
Ethyl benzene	– Group 3 confirmed as a priority. – Group 2 requested further information. – Group 1 did not record a decision.	Block 1	1
Ethylene oxide	– Group 1 indicated that further information about this substance was required. – Groups 2 and 3 did not make this request.	Block 3	0
Flaring emissions	– Group 2 requested addition to Block 1 during the morning session of the workshop, but in the afternoon indicated that more information was required. They also recognized alternate management strategies. – Groups 1 and 3 did not make this request.	Block 3	0

Substance	Participant's direction	Original location	Priority for # Groups
Formaldehyde	– Group 1 did not record a decision, but indicated that they preferred a low Block 1 or a Block 2 placement.	Block 2	1
Heavy Metals	– Group 3 requested that all heavy metals be added to Block 1	Block 1	1
Hydrogen sulphide	– All groups confirmed as a priority.	Block 1	3
Isocyanates	– Group 1 requested addition to Block 1 during the morning session of the workshop, but in the afternoon they did not record a decision. – Groups 2 and 3 did not request addition to Block 1.	Block 3	0
Mercaptans	– Group 2 requested addition to Block 1 during the morning session of the workshop, but in the afternoon they indicated that more information was required before finalising this decision. They also recognized alternate management strategies. – Groups 1 and 3 did not make this request.	Block 2	0
Mercury	– Group 1 indicated that further information about this substance was required. – Groups 2 and 3 did not make this request.	Block 2	0
Nickel (and compounds)	– All groups requested removal from Block 1.	Block 1	0
Nitric oxide	– Group 3 requested removal from Block 1 and requested an alternate management strategy. – Groups 1 and 2 did not record decisions.	Block 1	0
Nitrogen dioxide	– All groups confirmed as a priority. – Group 2 recognized alternate management strategies.	Block 1	3
Nitrogen oxide	– Group 3 requested removal from Block 1. – Groups 1 and 2 did not record decisions.	Block 1	0
Ozone	– Groups 1 and 3 confirmed as a priority – Group 2 requested removal from Block 1. – Groups 1 and 2 recognized the CWS as an alternate management tool.	Block 1	2
Particulate matter	– Groups 1 and 3 confirmed as a priority – Group 2 requested removal from Block 1. – Groups 1 and 2 recognized the CWS as an alternate management tool.	Block 1	2

Substance	Participant's direction	Original location	Priority for # Groups
Particulate matter (PM) precursors	– Group 1 requested addition to Block 1, and indicated that they considered VOCs to be of particular importance.	Block 3 (VOCs)	1
Pesticides	– Group 1 indicated that further information about this substance was required. – Groups 2 and 3 did not make this request.	Block 1 Block 2	0
Polycyclic Aromatic Hydrocarbons (PAHs)	– Groups 1 requested addition to Block 1. – Group 2 noted that more information was required. – Group 3 did not make this request.	Block 2	1
Styrene	– Group 1 requested an alternate management strategy. – Groups 2 and 3 requested further information, and did not record a decision.	Block 1	0
Sulphur dioxide	– All groups confirmed as a priority. Groups 2 and 3 indicated that a short-term guideline was their concern.	Block 1	3
Toluene	– Groups 2 and 3 confirmed as a priority. – Group 1 did not record a decision.	Block 1	2
Total Reduced Sulphur	– All 3 groups confirmed as a priority. Group 3 indicated that an odour guideline was desirable.	Block 1	3
Vinyl chloride	– Group 1 indicated that further information about this substance was required. – Groups 2 and 3 did not make this request.	Block 2	0
Volatile Organic Compounds (VOCs)	– Groups 1 and 2 requested that VOCs be added to Block 1. – Group 3 did not request this addition.	Block 3	2
Xylenes	– Group 2 and Group 3 confirmed as a priority. – Group 1 did not record a decision.	Block 1	2

Appendix B Tables of Contents for Assessment Documents

CREATED OR ADOPTED GUIDELINES ASSESSMENT DOCUMENT - PROPOSED TABLE OF CONTENTS

CREATED (NEW) GUIDELINES	ADOPTED GUIDELINES
Introduction	Introduction
Physical and Chemical Properties	Physical and Chemical Properties
Entry characterization	Entry characterization
Production and use	***Production and use***
Source and release	***Source and release***
Natural sources	Natural sources
Anthropogenic sources	Anthropogenic sources
Environmental Fate and Behaviour	
Monitoring Methods	Monitoring Methods
Ambient Concentrations	Ambient Concentrations
Effects Characterization	
Vegetation Health	
Human Health	
Others	
Ambient Guidelines in Other Jurisdictions	Ambient Guidelines in Other Jurisdictions
Recommendation of Alberta Ambient Air Quality Guidelines	Recommendation of Alberta Ambient Air Quality Guidelines
Reference	Reference

REVIEWED OR UPDATED GUIDELINES ASSESSMENT DOCUMENT - PROPOSED TABLE OF CONTENTS

The first review will be similar to the newly created guidelines. Second or subsequent updates will add or update the assessment document created during the first review.

Appendix C Other Ambient Air Quality Guidelines Processes

Canadian Council of Ministers of the Environment
Canada-Wide Standards Process

The Canada-wide Environmental Standards Sub-Agreement is a framework for federal, provincial, and territorial Environment Ministers to work together to address key environmental protection and health risk reduction issues that require common environmental standards across the county. Set under the framework of the Canada-wide Accord of Environmental Harmonization, the standards sub-agreement sets out principles for governments to jointly agree on priorities, to develop standards, and prepare complementary workplans to achieve those standards, based on the unique responsibilities and legislation of each government.[1]

Canada-wide Standards currently in place or in the works include: Particulate Matter (PM) and Ozone, Mercury Emissions, Benzene, Petroleum Hydrocarbons in Soil, and Dioxins and Furans. Individual provinces are responsible for deciding how to implement the standards once they have been endorsed by the Canadian Council for Ministers of the Environment (CCME).

The PM and Ozone CWSs were endorsed by the CCME on June 5, 2000, and jurisdictions will create plans to implement them. A multi-stakeholder PM and Ozone Implementation Planning Project Team has been created to recommend an implementation plan for Alberta. The plan will be recommended to Alberta Environment in the year 2003. New Ambient Air Quality Guidelines for both PM and Ozone will be adopted in Alberta as a result of the CWSs.

Canadian Environmental Protection Act, 1999 (CEPA 1999)[2]

Objectives may be promulgated by Environment Canada and/or Health Canada under the Canadian Environmental Protection Act (CEPA), Part 1, Section 8, and adopted by provincial and territorial jurisdictions for enforcement as standards.

The federal government sets national ambient air quality objectives on the basis of the recommendations from the Federal-Provincial Working Group on Air Quality Objectives and Guidelines consisting of representatives from both the health and environment departments.

---

[1] Adapted from *CCME Backgrounder - Canada-wide Standards - Overview*
[2] Adapted from *Canadian National Ambient Air Quality Objectives: Process and Status. Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment*